DEPARTMENT of ENVIRONMENTAL SERVICES Water Supply & Pollution Control Division - Biology Bureau

LAKE TROPHIC DATA

MORPHOMETRIC:

Lake: POWDER	MILL POND	Lake Area (ha):	176.04
Town:	HANCOCK	Maximum depth (m):	5.3
County:	Hillsborough	Mean depth (m):	1.0
River Basin:	Merrimack	Volume (m³):	1818500
Latitude:	42°59'34" N	Relative depth:	0.3
Longitude:	71°55'30" W	Shore configuration:	3.49
Elevation (f	t): 675	Areal water load (m/yr	112.9
Shore length	(m): 16400	Flushing rate (yr^{-1}) :	109.3
Watershed are	ea (ha): 37296.0	P retention coeff.:	0.20
% watershed p	ponded: 3.4	Lake type: ar	tificial

BIOLOGICAL:	3 February 1998	22 July 1997
DOM. PHYTOPLANKTON (% TOTAL) #1	SPARSE - NO DOMINANT	DINOBRYON 40%
#2		SYNURA 20%
#3		MELOSIRA 15%
PHYTOPLANKTON ABUNDANCE (units/mL)		
CHLOROPHYLL-A (µg/L)		10.78
DOM. ZOOPLANKTON (% TOTAL) #1	SPARSE - NO DOMINANT	KERATELLA 53%
#2		BOSMINA 20%
#3		NAUPLIUS LARVA 9%
ROTIFERS/LITER	14	1017
MICROCRUSTACEA/LITER		546
ZOOPLANKTON ABUNDANCE (#/L)	14	1591
VASCULAR PLANT ABUNDANCE		Common/Abun
SECCHI DISK TRANSPARENCY (m)		1.2
BOTTOM DISSOLVED OXYGEN (mg/L)	13.5	0.2
BACTERIA (E. coli, #/100 ml) #1		2
#2		
#3		

SUMMER THERMAL STRATIFICATION:

weakly stratified

Depth of thermocline (m): None Hypolimnion volume (m³): None Anoxic volume (m³): 500

CHEMICAL:			POWDER MI HANCOCK	LL POND	
	3 Febru	lary 1998	22 J	uly 1997	
DEPTH (m)	1.0		2.0		4.0
pH (units)	6.0		6.6		6.3
A.N.C. (Alkalinity)	3.7		5.4		5.5
NITRATE NITROGEN	0.10		< 0.05		< 0.05
TOTAL KJELDAHL NITROGEN	0.30		2.40		0.50
TOTAL PHOSPHORUS	0.019		0.040		0.036
CONDUCTIVITY (µmhos/cm)	79.2		69.2		69.9
APPARENT COLOR (cpu)	33		70		75
MAGNESIUM			0.72		
CALCIUM			2.8		
SODIUM			8.8		
POTASSIUM			0.74		
CHLORIDE	16		14		14
SULFATE	5		3		4
TN : TP	21		60		14
CALCITE SATURATION INDEX			3.5		

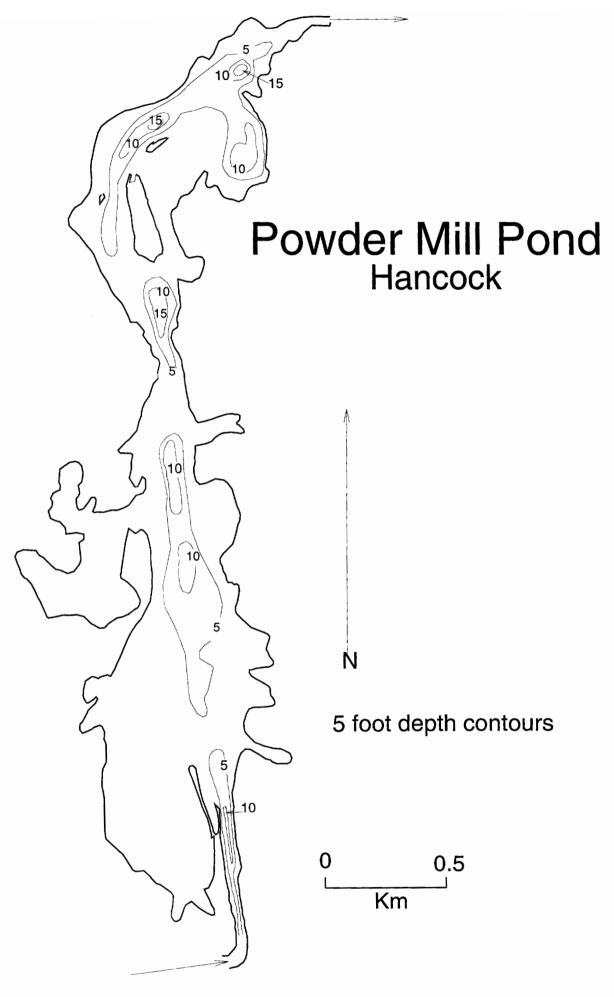
All results in mg/L unless indicated otherwise

TROPHIC CLASSIFICATION: 1997

D.O.	s.D.	PLANT	CHL	TOTAL	CLASS
**	4	4	2	10	Eutro.

COMMENTS:

- 1. A previous survey conducted in 1985 also classified the pond as eutrophic. The chlorophyll value in 1997 was approximately 1/3 the 1985 value. That reduction in chlorophyll was sufficient to remove the pond from the 303(d) list of impaired waters.
- 2. This is a shallow, weedy impoundment of the Contoocook River; the dam is operated by Monadnock Paper Mills, Inc.
- 3. The upper summer sample for Total Kjeldahl nitrogen was unexplainably high. The high value was not present at the lower level, and apparently was not associated with organic nitrogen since the phosphorus value was not abnormally high.
- 4. The zooplankton were very abundant, indicating that the high primary productivity was moving up the food chain.



FIELD DATA SHEET

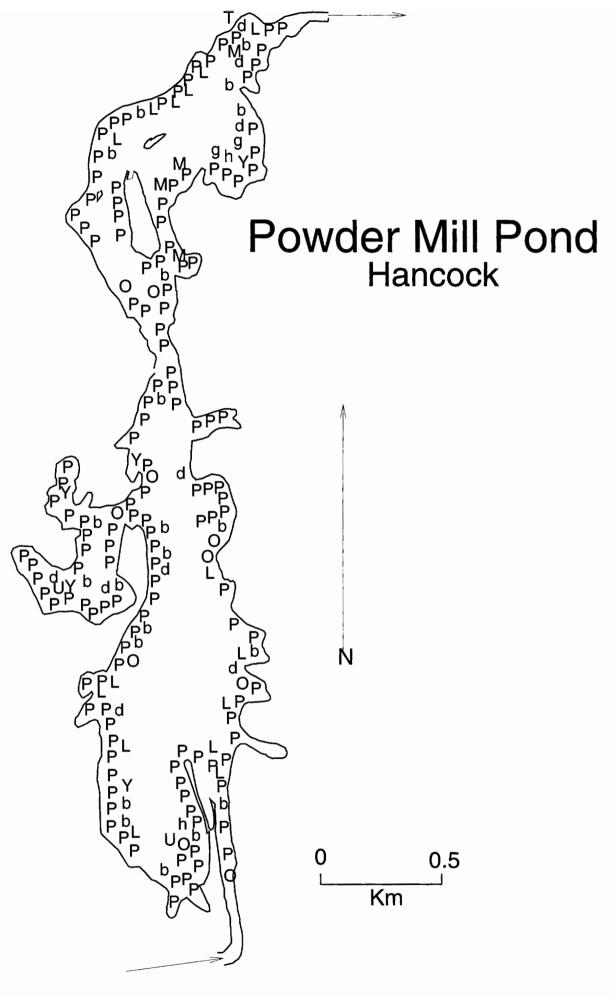
AKE: POWDER MILL PON ATE: 07/22/97		TOWN: HANCOCK ER: SUNNY & WARM	
DEPTH (M)	TEMP (°C)	*DISSOLVED OXYGEN	OXYGEN SATURATION
0.1	23.9	7.0	80 %
1.0	23.0	6.8	78 %
2.0	22.4	6.2	71 %
3.0	22.2	5.9	66 %
4.0	21.9	5.4	60 %
5.0	19.2	0.2	2 %

SECCHI DISK (m): 1.2 COMMENTS:

BOTTOM DEPTH (m): 5.3

TIME: 1300

*Dissolved oxygen values are in mg/L



AQUATIC PLANT SURVEY

LAK	E: POWDER MILL POND	TOWN: HANCOCK	DATE: 07/22/97	
еу	PLANT	NAME	ABUNDANCE	
	GENERIC	COMMON	ABONDANCE	
P	Pontederia cordata	Pickerelweed	Common	
b	Scirpus	Bulrush	Scattered	
0	Cephalanthus occidentalis	Buttonbush	Scattered	
L	Lythrum salicaria	Purple loosestrife	Scattered	
d	Dulichium arundinaceum	Three-way sedge	Scattered	
М	Myriophyllum heterophyllum	Water milfoil	Sparse	
Y	Nuphar	Yellow water lily	Scattered	
h	Myriophyllum humile	Water milfoil	Scattered	
g	Polygonum	Smartweed	Sparse	
U	Utricularia	Bladderwort	Common	
Т	Typha	Cattail	Sparse	
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		Marin Andrews		
	August			
		Local Services Control of Control		

OVERALL ABUNDANCE: Common/Abun

GENERAL OBSERVATIONS:

- 1. The exotic milfoil species was present.
- 2. Sterile, thread-like leaves and other bottom growth was present along most of the visible bottom, but are not depicted on the map.
- 3. This is primarily a narrow river channel through a flooded meadow; extensive shoal areas exist suitable for rooted plant growth.
- 4. Pondweed was seen but in such small amounts it was not depicted on the map.